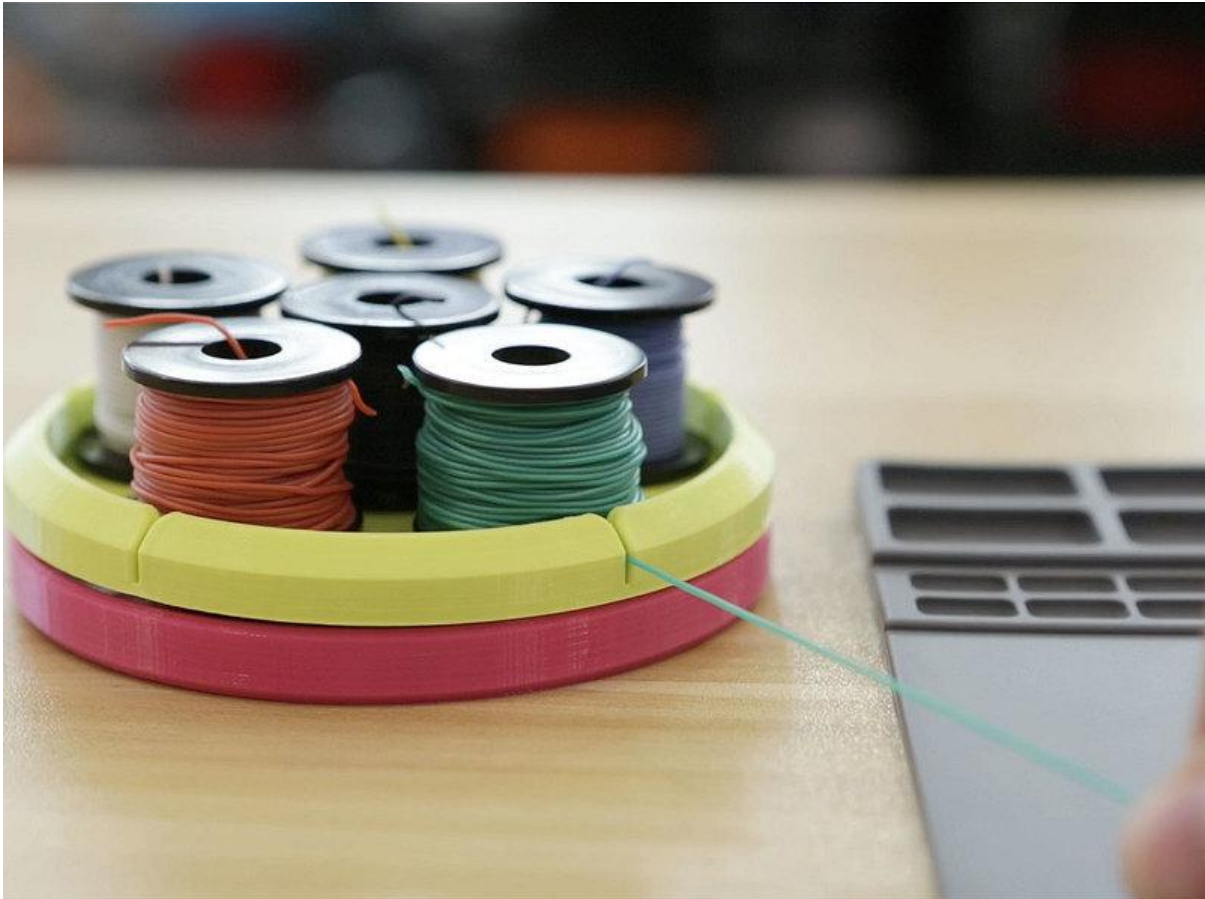




Wire Spool Carousel

Created by Ruiz Brothers



<https://learn.adafruit.com/wire-spool-carousel>

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3D Printing

Wire Spool Storage

Store your spools of wire with this 3D printed carousel caddy! Holds up to six mini wire spools and spins! Get your practical 3D printing on with this handy organizer. I leave spools of wire on the table and it's kinda messy so I finally made myself a little wire spool holder. I designed it to spin freely for no particular reason other than it looks cool. I also added these little notches that can be used to hold the wires in place. The carousel can hold up to 6 spools of wire which is enough to hold all the different colors in the Adafruit store.



Wire That's Flexible + Durable

This 30 gauge wire features silicone sheathing which makes it really strong and flexible. It's stranded wire and it's really nice for projects and even wearables. The silicone is very resistant to heat so it won't melt if the tip of the soldering iron gets too close. This is actually my goto stuff for just about every project. Most jumper wire use PVC based sheathing which isn't very heat resistant. Silicone coated wires are going to last longer so it's great for reworking.

1 x [Black Wire Spool](https://www.adafruit.com/product/3164)

Silicone Cover Stranded-Core Wire - 50ft 30AWG

<https://www.adafruit.com/product/3164>

1 x [White Wire Spool](https://www.adafruit.com/product/3169)

Silicone Cover Stranded-Core Wire - 50ft 30AWG

<https://www.adafruit.com/product/3169>

1 x [Red Wire Spool](https://www.adafruit.com/product/3165)

Silicone Cover Stranded-Core Wire - 50ft 30AWG

<https://www.adafruit.com/product/3165>

1 x [Blue Wire Spool](https://www.adafruit.com/product/3166)

Silicone Cover Stranded-Core Wire - 50ft 30AWG

<https://www.adafruit.com/product/3166>

1 x [Green Wire Spool](https://www.adafruit.com/product/3168)

Silicone Cover Stranded-Core Wire - 50ft 30AWG

<https://www.adafruit.com/product/3168>

Silicone Cover Stranded-Core Wire - 50ft 30AWG
Silicone Cover Stranded-Core Wire - 50ft 30AWG

1 x [Yellow Wire Spool](#)

<https://www.adafruit.com/product/3167>

Silicone Cover Stranded-Core Wire - 50ft 30AWG

1 x [M3 x 4mm Machine Screws](#)

[https://](https://www.albanycountyfasteners.com/3-MM-x-5-Phillips-Flat-Head-Machine-Screw-p/1011-1006.htm)

Flat Head Phillips M3 x .5 x 5mm

www.albanycountyfasteners.com/3-MM-x-5-Phillips-Flat-Head-Machine-Screw-p/1011-1006.htm

1 x [608ZZ Ball Bearing](#)

<https://www.adafruit.com/product/1178>

Radial Ball Bearing 608ZZ - Set of 4

Practical 3D Printing

I designed the base of the holder around these spools so they'll fit precisely. It's parametrically driven so it's easy to update the design for different sizes. I printed them in PLA and thoroughly tested the tolerances so I went through several iterations.



[Download from Thingiverse](#)

[Download from Youmagine](#)

[Download from Pinshape](#)

What If I Don't Have A 3D Printer?

Not to worry! You can use a 3D printing service such as [3DHubs \(\)](#) or [MakeXYZ \(\)](#) to have a local 3D printer operator 3D print and ship you parts to you. This is a great

way to get your parts 3D printed by local makers. You could also try checking out your local Library or search for a Maker Space.



Slice Settings

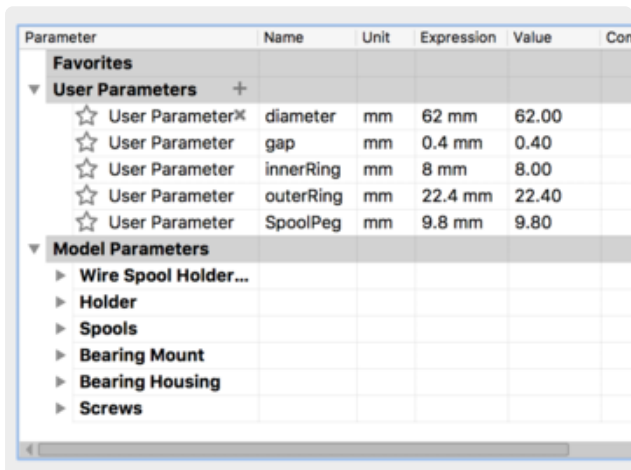
These parts have been tested and 3D printed on an Ultimaker 2+ and 3 using PLA filament. The parts were sliced using CURA 3.x with the following slice settings.

- 220C extruder temp
- 65c bed temp
- 0.2 layer height
- 0.38 line width
- 2 Wall Line Count – 0.4 nozzle
- 20% infill
- 70mm/s print speed

Design Source Files

The spool holder carousel assembly was designed in Fusion 360. This can be downloaded in different formats like STEP, SAT and more.

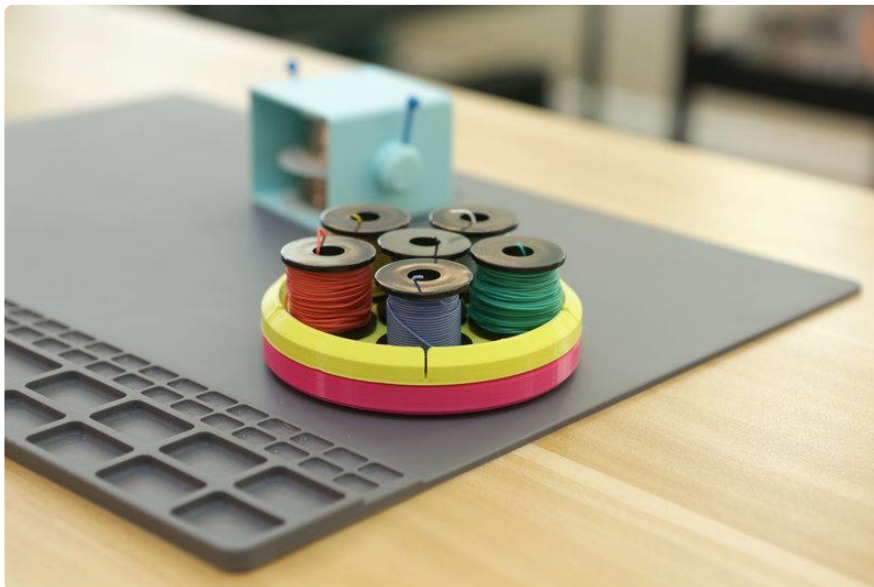
Download Fusion 360 Source



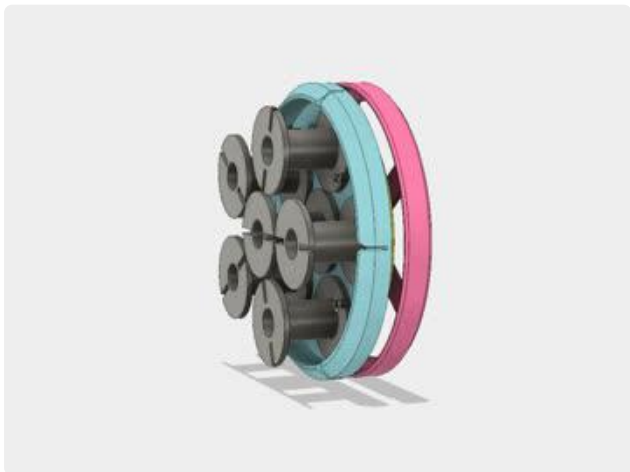
Parametric Design

I setup several users parameters that will allow the tolerances to be easily adjusted. For example you can change the size of the ball bearing and wire spools.

- diameter – the size of the spool holders base
- gap – Not used but for tolerance clearance on snap fit features
- outerRing – The diameter of the ball bearings inner ring
- innerRing – The diameter of the bearings outer ring
- SpoolPeg – The diameter of the peg holders



Assembly



Assembly

To avoid printing support material, the spool holder and bearing mount are printed separately which means they'll have to be either glued or fastened together. This CAD explosion shows how the bottom base holds the outer ring of the bearing. The open features produce less material meaning less print time.



Fasten Parts

Start by joining the mount and spool holder together with the bottom surfaces mating. Then line up the mounting holes and insert five M3 x 5mm flat head Phillips machine screws. Fasten until fully tightened. The spool holder has chamfered holes to allow the head of the screws to be flush.



Install Bearing

Grab the ball bearing and press fit the inner ring into the shaft of the 3d printed holder mount part. It ought to have a tight fit so it shouldn't be loose. If it is, the diameter of the feature will need to be adjusted in cat – Or update the slice settings with a horizontal compensation offset.



Install Base

Place the 3d printed bottom base over the outer ring of the ball bearing. Firmly press the two parts together until the ball bearing is fully fitted over the outer ring of the ball bearing. The two parts should freely spin independently from each other.



Install Spools

The 30AWG wire spools should fit snugly into the pegs. The little notches on the side allow wires to be held in place. Be sure to give it a spin!